

In the Claims


Please amend Claims 172-177, 180-189, 192, 202-206, 208 and 212. Amendments to the claims are indicated in the attached "Marked Up Version of Amendments" (pages ii-v).

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172. (Amended) A substrate with a surface comprising a plurality of polypeptides with different, known sequences bound to the surface in positionally defined locations, at a density exceeding 400 different polypeptides occupying a total area of less than 1 cm<sup>2</sup> on said substrate, said groups of polypeptides having different polypeptide sequences.
173. (Amended) The substrate as recited in claim 172, wherein said substrate comprises 10<sup>3</sup> or more different groups of polypeptides with known sequences bound to positionally defined locations of said substrate.
174. (Amended) The substrate as recited in claim 172, wherein said substrate comprises 10<sup>4</sup> or more different groups of polypeptides with known sequences bound to positionally defined locations of said substrate.
175. (Amended) The substrate as recited in claim 172, wherein said substrate comprises 10<sup>5</sup> or more different groups of polypeptides with known sequences in positionally defined locations.
176. (Amended) The substrate as recited in claim 172, wherein said substrate comprises 10<sup>6</sup> or more different groups of polypeptides with know sequences in positionally defined locations.
177. (Amended) The substrate as recited in claims 172, wherein said groups of polypeptides are at least 50% pure within said positionally defined locations.
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180. (Amended) A substrate with a surface comprising a plurality of polypeptides with different, known sequences bound to the surface in positionally defined locations, at a

density exceeding 1000 different polypeptides occupying a total area of less than 1 cm<sup>2</sup> on said substrate, said groups of polypeptides having different polypeptide sequences.

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181. (Amended) The substrate as recited in claims 180, wherein said substrate comprises 10<sup>3</sup> or more different groups of polypeptides with known sequences bound to positionally defined locations of said substrate.
182. (Amended) The substrate as recited in claim 180, wherein said substrate comprises 10<sup>4</sup> or more different groups of polypeptides with known sequences bound to positionally defined locations of said substrate.
183. (Amended) The substrate as recited in claim 180, wherein said substrate comprises 10<sup>5</sup> or more different groups of polypeptides with known sequences in positionally defined locations.
184. (Amended) The substrate as recited in claim 180, wherein said substrate comprises 10<sup>6</sup> or more different groups of polypeptides with known sequences in positionally defined locations.
185. (Amended) An array of more than 1,000 different groups of polypeptide molecules with known sequences bound to a surface of a substrate, said groups of polypeptide molecules each in positionally defined locations and differing from other groups of polypeptide molecules in monomer sequence, each of said positionally defined locations being an area of less than about 0.01 cm<sup>2</sup> and each positionally defined locations comprising polypeptides of known sequence, said different groups occupying a total area of less than 1 cm<sup>2</sup>.
186. (Amended) The array as recited in claim 185, wherein said positionally defined locations is less than about 1x10<sup>-2</sup> cm<sup>2</sup> to about 1x10<sup>-5</sup> cm<sup>2</sup>.

187. (Amended) The method as recited in claim 186, wherein said positionally defined locations is less than about  $1 \times 10^{-2} \text{ cm}^2$  to about  $1 \times 10^{-4} \text{ cm}^2$ .
188. (Amended) The method as recited in claim 187, wherein said positionally defined locations is less than about  $1 \times 10^{-2} \text{ cm}^2$  to about  $1 \times 10^{-3} \text{ cm}^2$ .
189. (Amended) The array as recited in claim 185, made by the process of:
- providing a polypeptide array comprising at least two different polypeptides immobilized on a surface, and wherein said polypeptides are synthesized on said surface;
  - contacting said surface with a first protected amino acid wherein said first protected amino acid is selectively coupled to a functional group in a first selectively activated region of said surface;
  - contacting said surface with a second protected amino acid without physical segregation of said surface such that said second protected amino acid is selectively coupled to a functional group in a second selectively activated region of said surface; and,
  - repeating the above steps until at least two different polypeptides are formed at positionally defined locations on said substrate surface.
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192. (Amended) An array of polypeptides, said array of polypeptides comprising:
- a substrate having a surface; and
  - a plurality of different polypeptides bound to said surface at a density exceeding  $400 \text{ different polypeptides/cm}^2$ , wherein each of said plurality of different polypeptides is attached to said surface in a different positionally defined location of area greater than  $100 \text{ square microns}$ , has a different determinable sequence.
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202. (Amended) The array of claim 192, wherein each of said different positionally defined locations is physically separated from each of the other positionally defined locations.

203. (Amended) The array of claim 192, wherein said polypeptides in said different positionally defined locations comprise polypeptides that are at least 20% pure.
204. (Amended) The array of claim 192, wherein said polypeptides in said different positionally defined locations comprise polypeptides that are at least 50% pure.
205. (Amended) The array of claim 192, wherein said polypeptides in said different positionally defined location are at least 80% pure.
206. (Amended) The array of claim 192, said polypeptides in said different positionally defined locations are at least 90% pure.
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208. (Amended) The array of claim 192, wherein said polypeptides in said different positionally defined locations are at least 10% pure.
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212. (Amended) The array of claim 210, wherein said plurality of different polypeptides exceeds 1000 different groups wherein each of said plurality of different polypeptides is attached to said surface in a different positionally defined location of area greater than 100 square microns, has a different determinable sequence.
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#### REMARKS

The Glossary material inserted into the specification has been reproduced verbatim (except for correction of two spelling mistakes) from pp. 10-15 of USSN 07/492,462 (now US 5,143,854) to which priority is claimed and which is incorporated by reference (see Cross-Reference to Related Applications at p.1 of the present specification). The material is copied into the present specification for ease of reference, and does not affect the merits (see MPEP 2163.07(b)).

The priority information in the cross-reference to related applications has been amended to correct various typographical inconsistencies within the paragraph.